Remarks/Arguments

Status of Claims

Claims 1-6 and 8, drawn to an isolated human G protein coupled receptor (motilin receptor) proteins comprising the amino acid sequence set forth in SEQ ID NO: 3 (MTL-R1A), or SEQ ID NO: 5 (MTL-R1B); or encoded by the nucleotide sequences set forth in SEQ ID NOS: 1, 2 or 4, and a method for determining whether a ligand is capable of binding to a motilin receptor comprising are under examination.

Claim 7 has been previously withdrawn for being drawn to nonelected subject matter.

Claims 5 and 6 have been canceled.

Claims 1-4 and 8 have been amended.

Election

The Examiner's acknowledgement of Applicant's election without traverse of Group I is noted. However, for the record Applicants consider Group I to consist of claims 1-6 and 7, and to Group II to consist of claims 7 and 8. It was not necessary to remove claim 2 from group I (as indicated on page 2 of the Office Action) in order to correct the typographical error made in the restriction requirement. Rather claim 2 (which was originally drawn to human motilin receptor proteins) needs to be removed from Group II which consists of puffer fish motilin receptor protein and a method of determining whether a ligand binds to this species of receptor.

Amendment(s) to the Specification

In order to conform with the suggested formats provided in the MPEP regarding format and components of an application, the specification of the instant disclosure has been amended. More specifically, the application has been amended to:

1. Replace the section heading "Brief Description of the Figures," with the suggested heading "Brief Description of the Drawings"

2. To remove three instances of the occurrence of "xxxxx" from the first page of the specification. This text was used as a place holder and was inadvertently left in the specification as filed.

The Office Action also indicates that the application does not contain an Abstract of the Disclosure as require by 37 CFR 1.72(b). Applicants respectfully direct the Examiner's attention to the fact that the corresponding PCT publication WO 99/64436 (PCT/US99/12773) contains an Abstract, therefore an abstract must have been filed with the original application. However, in

the interest of time, Applicants have amended the specification by requesting that the text of the abstract which appears in the PCT publication be added to the application. Accordingly, no new matter has been added by virtue of the inclusion of an abstract.

Claim Amendment(s)

In order to advance prosecution on the merits, claims 1-4, and 8 are currently amended. No new matter has been added.

Claim 1 has been amended to recite "an isolated motilin receptor protein comprising the amino acid sequence set forth in SEQ ID NO: 3."

Claim 2 has been rewritten as an independent claim drawn to "an isolated motilin receptor protein comprising the amino acid sequence set forth in SEQ ID NO: 5."

Claim 3 has also been rewritten as an independent claim drawn to "an isolated motilin receptor protein comprising the amino acid sequence encoded by the coding region set forth in SEQ ID NO: 1."

Claim 4 has been amended to recite "an isolated motilin receptor protein comprising the amino acid sequence encoded by the nucleotide sequence set forth in SEQ ID NO:2 or SEQ ID NO: 4.

Claim 8 has been amended to recite "a method for determining whether a ligand is capable of binding to a human motilin receptor comprising:

(a) transfecting test cells with an expression vector encoding a motilin receptor protein comprising the amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO: 5;

(b) exposing the test cells to the ligand;

(c) measuring the amount of binding of the ligand to the motilin receptor;

(d) comparing the amount if binding of the ligand to the motilin receptor in the test cells with the amount of binding of the ligand to control cells that have not been transfected with the motilin receptor where if the amount of binding of the ligand to the test cells is greater than the amount of binding of the ligand to the control cells, then the substance is capable of binding to motilin receptor."

The Objections to the Specification Should be Withdrawn

The Office Action indicates that the specification was objected to because of two informalities:

1. The MPEP indicates that Applicants are required to use the heading "Brief Description of the Drawings," to described the drawings; but the Applicants utilized the heading "Brief Description of the Figures;" and
2. On page 1, lines 5, 7, and 11 the text "xxxxx" appears in the text of the application.

Applicants have amended the specification to replace the incorrect section heading with the heading "Brief Description of the Drawings," and have also requested that the "xxxxx" designations be removed from the disclosure. Based on these amendments, Applicants respectfully request reconsideration and withdrawal of the outstanding objections.

The Rejection of Claims 1-6 Under 35 U.S.C. §101 Should be Withdrawn

Claims 1-6 were rejected under 35 USC §101 because the original claims did not indicate that the claimed subject matter was isolated or purified.

Claims 1-6 have been amended to recite "isolated" motilin receptors. Therefore, the amended claims refer to statutory subject matter which clearly reflects the hand of man. As amended the claims do not encompass naturally occurring receptors. Accordingly, Applicants respectfully request reconsideration and withdrawal of this non-statutory subject matter rejection.

The Rejection of Claim 1, 2 and 8 Under 35 U.S.C. §112, Second Paragraph Should be Withdrawn

Claims 1, 2 and 8 were rejected under 35 USC, §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claims the subject matter which Applicants regard as the invention. The Office Action indicates that this indefiniteness rejection is grounded in the finding that the term "motilin receptor," does not provide any structural limitations.

As amended, all of the claims recite SEQ ID NOS: to refer to specific motilin receptor proteins that are defined by, or encoded by, specific amino acid or nucleic acid sequences disclosed in the specification. Accordingly, one of skill in the art can readily ascertain the metes and bounds of the amended claims.

Claim 4 was alleged to be indefinite because it incorrectly referred to a nucleic acid sequence to provide the amino acid sequence of the motilin receptor protein. The subject matter of claim 4 correctly refers to a motilin receptor variant comprising the amino acid sequence

encoded by the nucleotide acid sequence set forth in SEQ ID NO: 2. It should be noted that the scope of claim 4 also encompasses a motilin receptor protein variant encoded by the nucleotide sequence set forth in SEQ ID NO: 4.

Claim 6 was also held to be indefinite because it incorrectly referred to a motilin receptor protein having the nucleic acid sequence set forth in SEQ ID NO:4, which provides a nucleic acid sequence which encodes the MTL-R1B variant protein set forth in SEQ ID NO: 5. The cancellation of claim 6 obviates this indefiniteness rejection.

Based on the claim amendments, and cancellation of claim 6, discussed above, Applicants respectfully request reconsideration and withdrawal of the outstanding indefinitness rejection.

The Rejection of Claims 1, 5 and 7-9 Under 35 U.S.C. §112, First Paragraph Should be Withdrawn

Claims 1, 2 and 8 were rejected under 35 U.S.C. §112, first paragraph for lack of enablement with respect to the "other" motilin receptors (defined as receptors other than the receptor proteins having the amino acid sequence set forth in SEQ ID NOS 3 and 5 or encoded by the nucleotide sequences set forth in SEQ ID NOS: 2 and 4 of the present invention).

As noted above, claims 1 and 2 have been amended to encompass only motilin receptor proteins which have a particular amino acid sequence, or which are encoded by particular nucleic acid sequences. Similarly, claim 8 has been amended to refer to methods which utilize transfected test cells comprising an expression vector encoding a motilin receptor protein comprising the amino acid sequence set forth in SEQ ID NO:3 or SEQ ID NO: 5.Therefore, Applicants are of the opinion that the scope of the claims is commensurate with the scope of the disclosure, and that undue experimentation would not be required to practice the full scope of the subject matter recited in the amended claims. Accordingly, reconsideration and withdrawal of the nonenablement rejection is respectfully requested.

The Rejection of Claims 1, 2 and 8 Under 35 U.S.C. §112, First Paragraph Should be Withdrawn

Claims 1, 2 and 8 were rejected under 35 USC §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably

convey to one of skill in the relevant art that the inventors, at the time the invention was filed, had possession of the claimed invention.

As originally filed claim 1 was directed to a genus of motilin receptors, claim 2 was directed to a subgenus comprising human motilin receptors and claim 8 was directed to a method of determining whether a ligand bound to a motilin receptor. The primary basis for the outstanding written description rejection is the Examiner's finding that the term "motilin receptor" did not provide any structural limitations or automatically infer a functionality, and that the original claims encompassed a genus of polypeptides including functional equivalents, which may have varied substantially in length and amino acid composition.

The recitation of particular SEQ ID NOS: in the amended claims, obviates the outstanding written description rejection. Because the amended claims are limited to particular motilin receptor proteins, and to methods for determining whether a ligand binds to the motilin receptors disclosed and claimed in the present application, Applicants respectfully request reconsideration and withdrawal of the outstanding written description rejection be withdrawn.

The Rejection of Claims 1-6 Under 35 U.S.C. §102, Should be Withdrawn

Claims 1-6 were rejected under 35 USC §102(a) as being anticipated by McKee, K *et al.* (Genomics, 46:426-434 (1997). The Examiner notes that McKee *et al.* discloses GPR38 receptor, which is allegedly characterized by a 100% query match to SEQ ID NOS: 3 and 5 of the instant application.

The McKee *et al.* reference reports on the cloning of G protein-coupled receptors (G-PCRs) related to the hypothalamic and pituitary receptor for the growth hormone secretagogues from human genomic DNA libraries. The nucleic acid sequence of the GPR38 clones, disclosed in the reference, was predicted solely on the basis of genomic DNA sequence because efforts to isolate cDNA clones by standard library screening were unsuccessful and exon-intron boundaries could not be resolved. A theoretical amino acid sequence was derived from the predicted nucleotide sequence and this is the amino acid sequence disclosed in the cited reference. Therefore, the prior art reference merely provides a virtual protein sequence, which did not actually exist in physical form and which therefore did not enable a skilled artisan to identify a ligand for the receptor. In summary, the cited reference described a single protein of unknown function, and fails to provide a coding sequence for the orphan receptor that is disclosed in the publication.

In contrast the instant disclosure describes two functional variants of a functional motilin receptor. The claimed receptors are claimed by reference to two distinct amino acid sequences that are 412 amino acids (MTL-R1A) and 386 amino acids (MTL-R1B) in length, which are encoded by the nucleotide sequences provided in SEQ ID NOS: 2 and 4. Due to the degeneracy of the nucleotide sequence, the prior disclosure of an amino acid sequence does not anticipate the genus of nucleotide sequences which it is encoded by. Accordingly, the cited reference does not deprive the motilin receptors or screening method of the instant invention of its novelty.

In summary, Applicants maintain that the instant claims are in condition for allowance and a favorable action on the merits is earnestly solicited.

Respectfully submitted,

By _____

Patricia L. Chisholm
Reg. No. 45,822
Attorney for Applicant

MERCK & CO., INC.
P.O. Box 2000
Rahway, New Jersey 07065-0907
(732) 594-5738

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